



Between 1917 and 1972, Reilly Tar and Chemical Company and its facility known as Republic Creosoting Company operated on an 80 acre site in St. Louis Park (population 50,000), a western suburb of Minneapolis. Reilly Tar and Chemical refined coal tars to produce creosote, which was then used by Republic Creosote to treat ties and timbers. The creosote waste (e.g., creosote oil, coke) was discharged into open trenches in the southern part of the property.

The creosoting operation has long been a suspected source of groundwater contamination. In the early 1930's a tar-like taste was detected in municipal and private wells, the former of which were closed due to the problem. However, no action was taken against the companies at the time since deeper groundwater resources were readily available.

Routine investigation of the St. Louis Park Municipal Water Supply in 1973 detected low levels of phenolic compounds, possible carcinogens which are breakdown products of creosote oils, in raw water from deep municipal wells. The recent discovery spurred an intensive investigation to uncover the extent and degree of groundwater contamination.

Tests for soil and water contamination were conducted by the Metropolitan District Office, Minnesota Department of Health, and the St. Louis Park Water Department. The surface soil of much of the 80 acre site was found to be saturated with coal tar waste. The contaminants appeared to move downward and southward readily with the groundwater.

Although the ultimate effect of contaminants migrating in groundwater is unpredictable, there is a serious concern for protecting potential and

006956

presently used deeper supplies. Unfortunately, industrial wells that are somewhat confined in the area were recently abandoned, and migration of contaminants away from the site began to accelerate and somewhat change direction. Slight contamination already detected in deep aquifers at the site was attributed to recharge through uncased wells. As remedial action, the city closed three municipal wells in the area north of the disposal site. These wells were believed to be conduits for surface contamination of deeper aquifers. As best as can presently be determined, all the contaminated municipal wells have been abandoned.

According to the Minnesota Pollution Control Agency (MPCA), the Reilly Tar and Chemical Company and the Republic Creosote Company contributed nothing to the cleanup of the site. The City and State have spent in excess of \$500,000 for containment, groundwater monitoring and pollution studies. In addition, the city incurred the following costs:

- \$20,000 - three wells capped, cleaned and filled with sand;
- \$750,000 - Lining of storm sewer ponds and pipes in vicinity of the site to prevent creosote contamination;
- \$2-3000 - special treatment of water main near the site;
- \$50-60,000 - excavation of two to three acres of contaminated material in part of property redeveloped by the city;
- \$10,000 - soil borings.

Estimates of cleanup vary from \$20 to \$200 million, depending upon the method used. A \$500,000 study (one-half Federal; one-half State funded) being conducted by the U.S.G.S. and due June 1980 will determine the extent of groundwater and soil contamination and the feasibility of using a system of barrier-wells for containment of the pollutants. The

gradient control system would capture coal tar derivatives and dispose of them in a waste water treatment facility. Total cost of implementing this technique is as yet unknown. The barrier system would probably be coupled with excavation and removal of an undetermined volume of contaminated soil. This would cost upwards of \$20 million depending upon the amount of material, transport, and method of disposal. Another study, funded by the State at a cost of \$120,000 and due in August 1981, will evaluate different remedial alternatives from cost-effective and environmental viewpoints. The city of St. Louis Park anticipates spending an additional \$10,000 to \$20,000 to build new wells and \$50,000 for closing a fourth. Cost of possible carbon filtration of municipal water, future water monitoring expenses, and professional time has not been accounted for in these figures. However, the city is also planning to eventually reopen the contaminated wells and is presently studying water treatment alternatives.

In the early 1970's complaints were filed against the company by the Minnesota Pollution Control Agency (MPCA) and the plant was closed in 1972. At the same time, part of the company's property was being considered for redevelopment by the city. The company transferred ownership of the property to the city of St. Louis Park, which, apparently unaware of the seriousness of contamination, signed a "hold-harmless" agreement freeing the company of responsibility for cleanup of the site. In turn, the city agreed to accept responsibility for any legal action which the State of Minnesota might bring relative to the site. Tests have since shown widespread contamination of soil and groundwater, which necessitates expensive cleanup of the site. A court hearing initiated by the State to amend a complaint against the Reilly Tar and Chemical Company was

006958

necessary to determine upon whom the burden of cleanup should fall.

The by-products of improperly disposed creosote waste have reached surface and deep aquifers. The highest concentration and most consistent presence of these materials (phenols, polynuclear aromatic hydro-carbons) is located close to the former creosote operation. Although an increase in concentration in deep aquifers in the past couple of years has not been verified, it has been shown that such chemicals are capable of moving great vertical and horizontal distances with the groundwater. Given the length of time the wastes were disposed, the large amounts involved, and spatial characteristics of the aquifer, widespread contamination of municipal water resources is possible. A most serious implication of contamination of deep aquifers is that municipal use by neighboring cities may be precluded. For example, southeastward movement of contamination toward Minneapolis may prevent future use by the city. This is particularly serious when one considers recent droughts in the area and projected water shortages for the city by the year 2000.

A study near completion will document degree of contamination in water used by 12 nearby cities. To date some studies have been conducted which address the public health implications of creosote contamination of water supplies in the area, but their results are as yet inconclusive.

006959